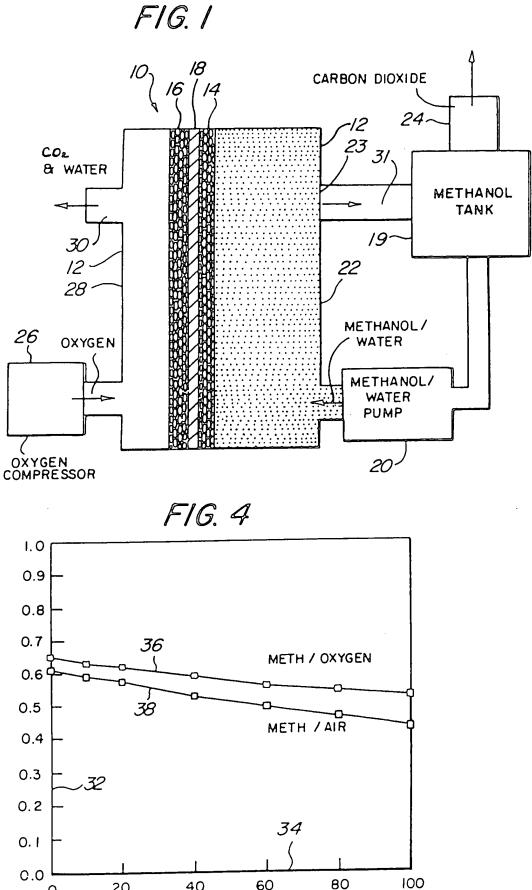
20

CURRENT DENSITY

0

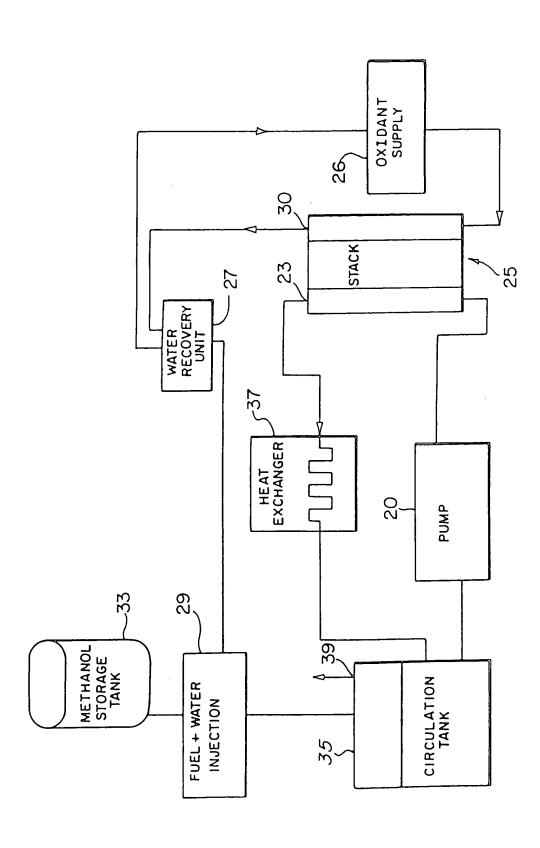
40

60



80

 (mA/cm^2)



F16.2

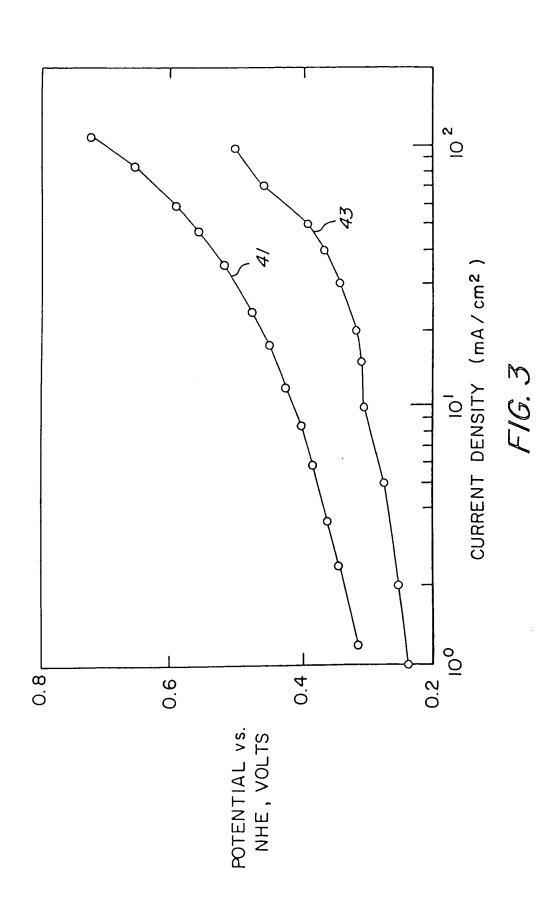
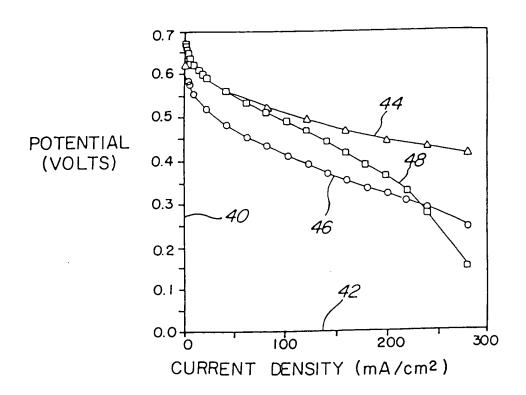
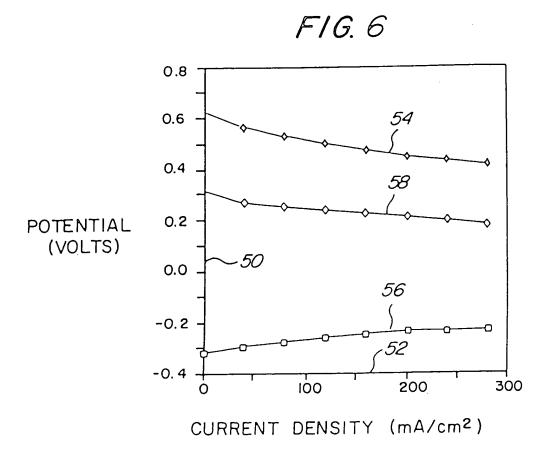


FIG. 5





,302

IMMERSE THE CARBON ELECTRODE STRUCTURE IN 1% SOLUTION OF NAFION IN METHANOL FOR ABOUT 5 MINUTES TO ACHIEVE IMPREGNATION OF THE NAFION INTO THE ELECTRODE TO A LOADING OF O.I - O.5 mg/cm².

304

REMOVE ELECTRODE FROM SOLUTION AND DRY IN VACUUM.

FIG. 7

F/G. //

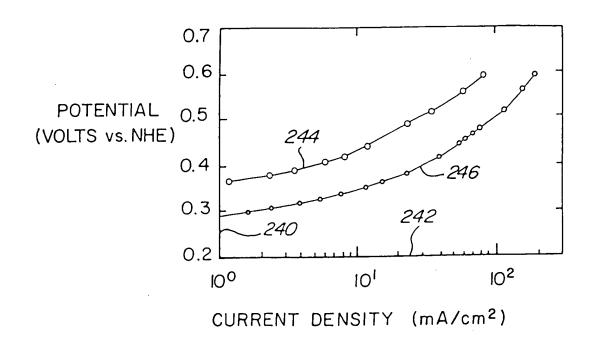
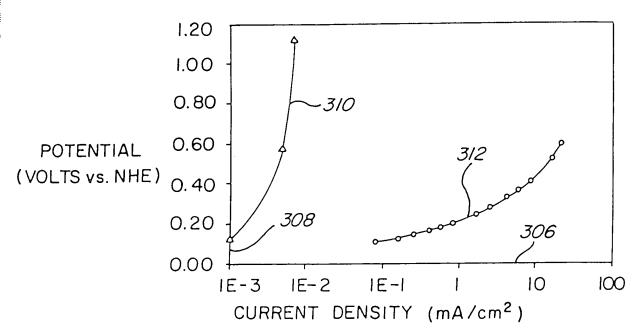


FIG. 8



-200

PREPARE CARBON ELECTRODE STRUCTURES FROM A MIXTURE OF 200m2/g HIGH SURFACE AREA CARBON PARTICLES AND TEFLON BINDER (15%) APPLIED TO A FIBER-BASE CARBON PAPER.

-202

PREPARE A BATH OF HYDROGEN
HEXACHLOROPALTINATE AND POTASSIUM
PENTACHLOROAQUORUTHENIUM WITH A METAL
ION CONCENTRATION IN THE RANGE OF Q.O.I-Q.O.5M
DISSOLVED IN 1M SULFURIC ACID.

-204

ADD PERFLUOROOCTANESULFONIC ACID TO BATH WITH A CONCENTRATION IN THE RANGE OF 0.1-1.0g1-1

₁206

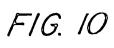
POSITION THE CARBON ELECTRODE IN THE BATH ALONG WITH A PLATINUM ANODE.

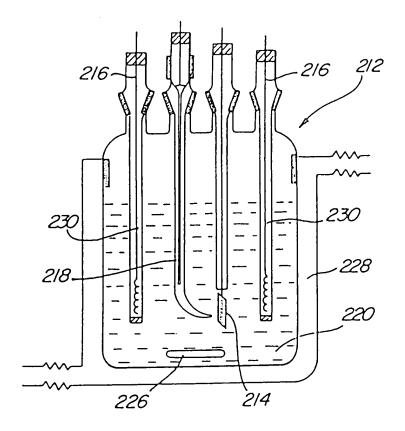
208

APPLY A VOLTAGE BETWEEN THE CARBON ELECTRODE AND THE ANODE FOR ABOUT 5-10 MINUTES TO ACHIEVE ELECTRODEPOSITION OF PLATINUM-RUTHENIUM TO A LOADING OF ABOUT 5mg/cm².

~210

REMOVE CARBON ELECTRODES FROM BATH AND WASH IN DEIONIZED WATER.





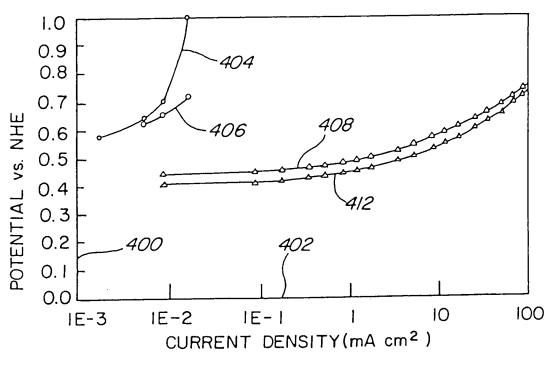


FIG. 12

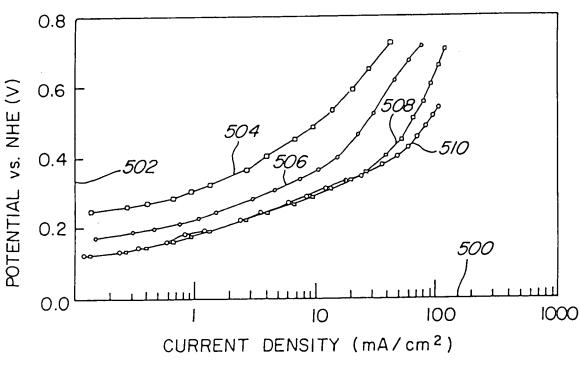
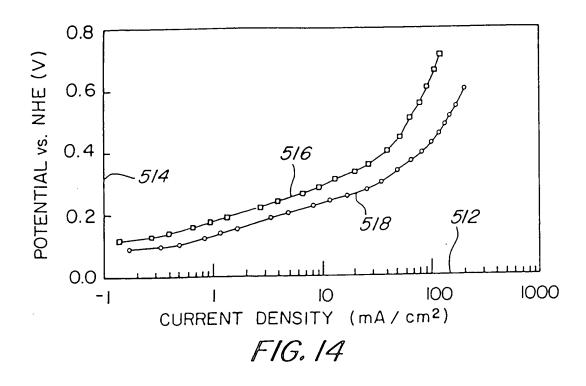
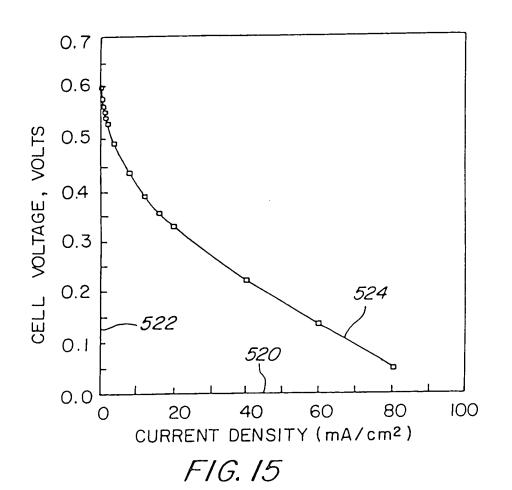
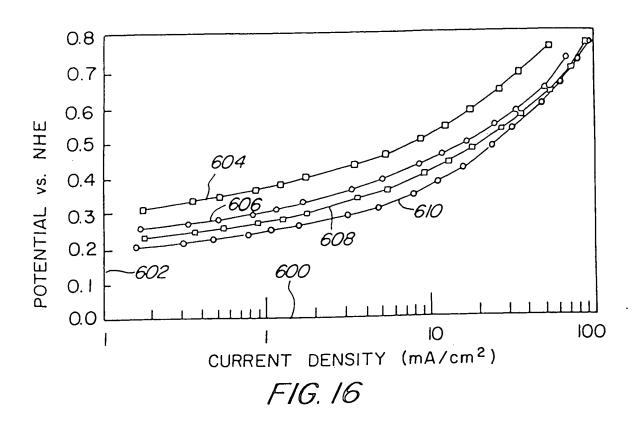
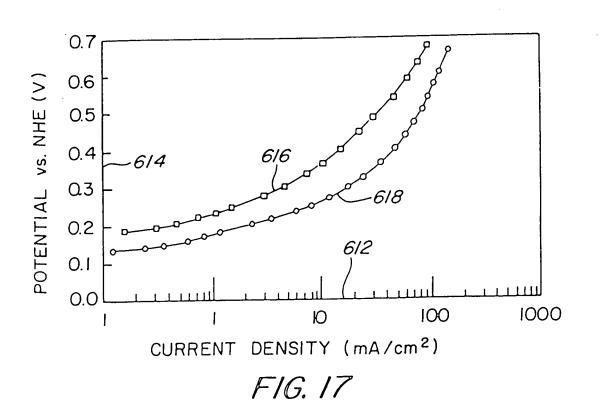


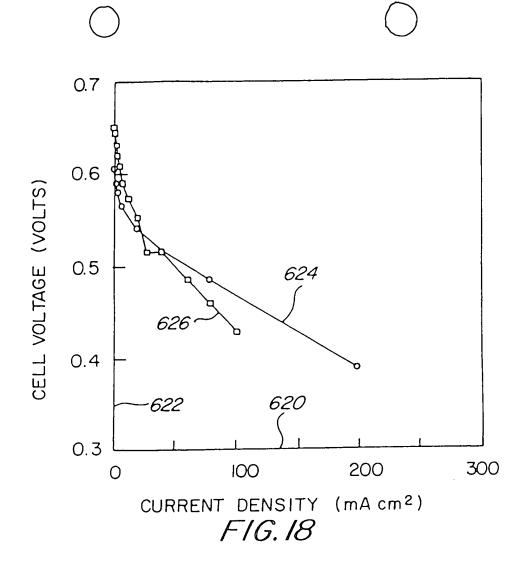
FIG. 13

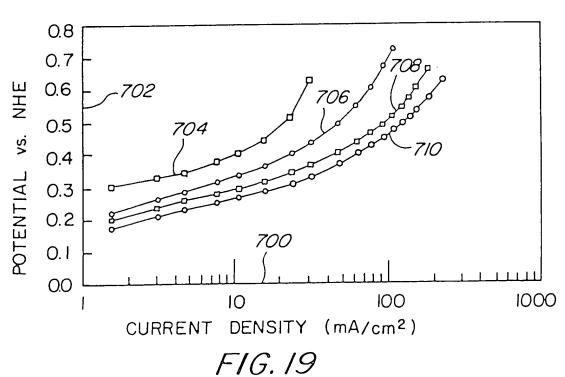












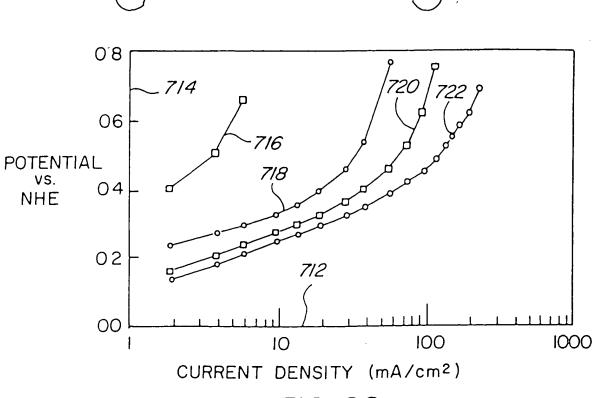


FIG. 20

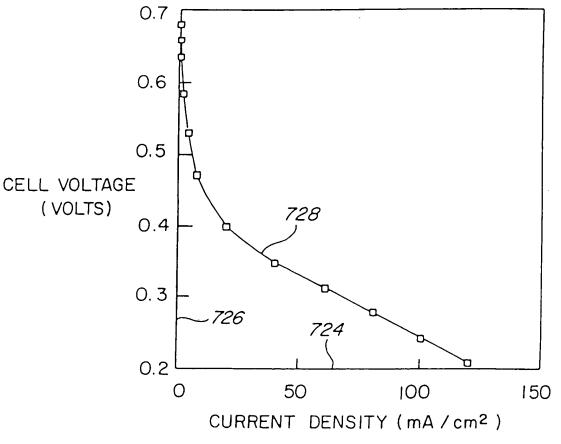


FIG. 21